



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : H04L 9/32		A1	(11) International Publication Number: WO 00/67424 (43) International Publication Date: 9 November 2000 (09.11.00)
(21) International Application Number:	PCT/US00/10958	(81) Designated States:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
(22) International Filing Date:	24 April 2000 (24.04.00)	(30) Priority Data:	09/301,864 29 April 1999 (29.04.99) US
(71)(72) Applicant and Inventor:	HASTE, Thomas, E., III [US/US]; Suite 734, 11288 Ventura Boulevard, Studio City, CA 91604 (US).	(74) Agents:	HOOVER, George, W. et al.; Blakely, Sokoloff, Taylor & Zafman, 7th Floor, 12400 Wilshire Boulevard, Los Angeles, CA 90025-1026 (US).
<p>Published <i>With international search report.</i></p>			
<p>(54) Title: GAMING SYSTEM WITH CENTRAL CONTROL</p> <p>(57) Abstract</p> <p>A centralized gaming system (10) has a host computer (12), a plurality of gaming terminals (14) and a communications network (16) connecting the gaming terminals to the host computer. The gaming terminals are preferably configured to play a variety of games. Operation of the gaming terminals is largely autonomous; however, game outcomes are determined by the central host computer. When a game is initiated by a player at a gaming terminal, the gaming terminal sends a game outcome request to the host computer over the communications network. In response to the request, the host computer sends the gaming terminal game outcome determining information such as, for example, a random number. The gaming terminal receives the game outcome determining information and determines the game outcome accordingly. The gaming terminal then communicates with the host computer to validate the game outcome and completes a game outcome action in accordance with the result of the validation.</p>			
<pre> graph TD A[PLAYER INSERTS MONEY OR EQUIVALENT INTO GAMING TERMINAL] --> B[PLAYER INITIATES GAME] B --> C[GAMING TERMINAL REQUESTS GAME OUTCOME DETERMINING INFORMATION] C --> D[HOST COMPUTER PROVIDES GAME OUTCOME DETERMINING INFORMATION] D --> E[GAMING TERMINAL DETERMINES GAME OUTCOME] E --> F[GAMING TERMINAL REQUESTS VALIDATION OF GAME OUTCOME] F --> G[HOST COMPUTER VALIDATES GAME OUTCOME] G --> H[GAMING TERMINAL PERFORMS GAME OUTCOME ACTION] </pre>			

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GAMING SYSTEM WITH CENTRAL CONTROL

BACKGROUND OF THE INVENTION

1. PRIOR APPLICATION

This application claims the benefit of co-pending provisional application Serial No. 60/107,265 filed November 4, 1998.

2. FIELD OF THE INVENTION

This invention relates generally to the field of gaming systems. More particularly, the gaming system of the present invention employs a centralized host computer and distributed gaming stations. Individual game outcomes at the gaming stations are determined by information provided by the host computer.

3. BACKGROUND

Slot machines and similar mechanical gaming devices have been almost universally replaced by electronic devices. Many such electronic devices emulate the corresponding mechanical gaming devices. Electronic gaming devices have also been developed for individual play of games such as black jack, poker, etc.

Electronic gaming devices are generally more tamper-resistant than their mechanical counterparts. Nevertheless, sophisticated thieves are able to tamper with the operation of electronic gaming devices to improve the odds of winning or to force a winning play outright.

Centralized gaming control provides an opportunity to substantially reduce gaming machine tampering, since a centralized gaming controller can be placed in a highly secure environment. Tampering with an individual gaming terminal will not affect the outcome of the game.

Gaming systems with centralized control are known in the art. For example, U.S. Patent No. 5,586,937 issued to Menashe discloses an interactive computerized gaming system with remote terminals. The remote terminals locally generate screen graphics and sound, but game outcomes are determined by random numbers generated in the host computer. Once a random number has been sent to a player station, the game outcome is determined and play proceeds accordingly. No provision is made for verification of the game outcome.

SUMMARY OF THE INVENTION

The present invention provides a centralized gaming system having a host computer, a plurality of gaming terminals and a communications network connecting the gaming terminals to the host computer. The gaming terminals are preferably configured to play a variety of games. Operation of the gaming terminals is largely autonomous; however, game outcomes are determined by the central host computer. When a game is initiated by a player at a gaming terminal, the gaming terminal sends a game outcome request to the host computer over the communications network. In response to the request, the host computer sends the gaming terminal game outcome determining information such as, for example, a random number. The gaming terminal receives the game outcome determining information and determines the game outcome accordingly. The gaming terminal then communicates with the host computer to validate the game outcome and completes a game outcome action in accordance with the result of the validation.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a block diagram of a gaming system in accordance with the present invention.

Figure 2 is a functional flow diagram of a method of conducting a game of chance according to a first embodiment of the invention.

Figure 3 is a functional flow diagram of a method of conducting a game of chance according to a second embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

In the following description, for purposes of explanation and not limitation, specific details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced in other embodiments that depart from these specific details. In other instances, detailed descriptions of well-known methods and devices are omitted so as to not obscure the description of the present invention with unnecessary detail.

Figure 1 is a block diagram of a centralized gaming system **10** in accordance with the present invention. Gaming system **10** has a central host computer **12**. A plurality of gaming terminals **14** are coupled to host computer **12** by communications network **16**. Gaming terminals **14** preferably resemble conventional electronic gaming devices. Gaming terminals **14** are preferably configured to play a variety of games such as slot machine games, poker, black jack, etc. The gaming terminals may be distributed within a casino in which a host computer **12** is installed. A single host computer may be used to control gaming terminals at a plurality of casinos or similar establishments. Gaming terminals may even comprise home computers linked to a host computer by the Internet or other data communication means.

The gaming terminals **14** include means for receiving money or equivalent means for accepting a player wager. For example, player accounts may be maintained in host computer **12**, in which case controls are provided at the gaming terminals for allowing a player to debit his or her account when placing a wager. Gaming terminals **14** also include appropriate controls for initiating games and making whatever player choices are permitted in accordance with the rules of such games. Gaming terminals **14** preferably include a video screen for displaying the progress of the game and the game outcome.

Figure 2 is a functional flow diagram illustrating the operation of gaming system **10**. Beginning at step **20**, the player inserts money into the gaming terminal or performs an equivalent action to place a wager. When the wager has been accepted, the player utilizes the controls on the gaming terminal to initiate a game at step **22**. Continuing to step **24**, the gaming terminal communicates with the host computer to request game outcome determining information. Such information is then provided to the gaming terminal by the host computer at step **26**. The game outcome determining information may be a random number generated by the host

computer, a semi-random number selected as the next number in a stored list of numbers or a specific game outcome selected as the next entry in a list of predetermined game outcomes. The gaming terminal receives the game outcome determining information and determines the game outcome therefrom at step **28**.

Once the game outcome has been determined, an appropriate display may be presented to the player on the video screen of the gaming terminal. Alternatively, the game outcome may be treated as a provisional game outcome pending validation thereof. In the latter case, there will be a delay before presenting the appropriate display to the player; however, such delay would be virtually imperceptible. At step **30**, the gaming terminal requests validation of the game outcome. If the gaming terminal has been tampered with, the game outcome at the terminal may be different from the game outcome that should have been determined from the game outcome determining information provided by the host computer. For example, a thief might tamper with a gaming terminal so that it provides a winning display when the actual game outcome should have been a loss. In step **30**, the gaming terminal determines what is being displaying and contacts the host computer to determine if what is being displayed is, in fact, what should be displayed. The host computer performs the comparison at set **32** and determines if there is a problem. If the comparison reveals a mismatch, it may be presumed that the gaming terminal has been tampered with, and the host computer can notify casino security accordingly. An appropriate error display can then be presented at the gaming terminal in step **34**. However, if the validation is successful, the appropriate game outcome action is performed at the gaming terminal. If the game outcome has been validated as a win, an appropriate display is presented and the player is paid or, alternatively, the player's account is credited with the amount of the win. If the game outcome is a loss, the gaming terminal prompts the player for a new wager.

Figure 3 is a functional flow diagram of the operation of gaming system **10** in accordance with an alternative embodiment of the invention. Steps **20 – 28** are identical to those of the previously described embodiment. In this embodiment, however, validation of the game outcome is performed by the gaming terminal rather than by the host computer. At step **40**, the gaming terminal requests validation of the game outcome determining information by requesting authentication of the previously provided game outcome determining information. The host computer then resends the game outcome determining information to the gaming terminal at step **42**. A game outcome is again determined and compared to the previously determined game outcome at step **44**. If there is a match, the game outcome is validated and the

appropriate game outcome action is performed. If the two game outcomes do not match, it may be presumed that the gaming terminal has been tampered with and an appropriate alert can be provided. This method is somewhat less desirable than the method described in connection with **Figure 2**, since it may be possible to tamper with the gaming terminal in such a way that the two game outcomes will match even though they are not the appropriate outcomes for the game outcome determining information provided by the host computer.

Aside from improving security for a gaming system, the present invention can also be advantageously used to provide a more even distribution of winning outcomes within the gaming system. With conventional electronic gaming devices, if a particular machine gets “hot”, only that machine will have a higher incidence of winning outcomes. With the centralized system of the present invention, the game outcomes are determined by the host computer. If the host computer gets “hot”, the winning outcomes will be distributed throughout the gaming system.

It will be recognized that the above described invention may be embodied in other specific forms without departing from the spirit or essential characteristics of the disclosure. Thus, it is understood that the invention is not to be limited by the foregoing illustrative details, but rather is to be defined by the appended claims.

CLAIMS**WHAT IS CLAIMED IS:**

1. In a gaming system including a host computer, at least one gaming terminal and communication means for connecting the gaming terminal to the host computer, a method of conducting a game of chance comprising the steps of:
 - initiating a game at the gaming terminal;
 - sending a game outcome request from the gaming terminal to the host computer via the communication means;
 - sending game outcome determining information from the host computer to the gaming terminal in response to the game outcome request;
 - receiving the game outcome determining information at the gaming terminal and determining a game outcome therefrom;
 - sending a request for validation of the game outcome from the gaming terminal to the host computer;
 - validating the game outcome; and
 - authorizing a game outcome action in accordance with a result of said validation.
2. The method of claim 1 wherein the game outcome determining information comprises a random number.
3. The method of claim 1 wherein the game outcome determining information comprises a next entry in a stored set of predetermined game outcomes.
4. The method of claim 1 wherein the game outcome action comprises a payment to a game player if the game outcome is a winning outcome and is successfully validated.
5. The method of claim 1 wherein the step of validating the game outcome is performed in the host computer.
6. The method of claim 1 wherein the request for validation of the game outcome comprises a request for authentication of the game outcome determining information.

7. The method of claim 6 further comprising the step of resending the game outcome determining information from the host computer to the gaming terminal in response to the request for authentication.

8. The method of claim 6 wherein the step of validating the game outcome is performed in the gaming terminal.

9. A gaming system including a host computer, at least one gaming terminal remote from the host computer and communication means for connection the gaming terminals to the host computer wherein:

the gaming terminal includes means for sending a game outcome request to the host computer via the communication means;

the host computer includes means for responding to the gaming terminal with game outcome determining information;

the gaming terminal includes means for receiving the game outcome determining information, determining a game outcome therefrom and sending a request for validation of the game outcome to the host computer;

one of the host computer and gaming terminal includes means for validating the game outcome and authorizing a game outcome action.

10. The system of claim 9 wherein the game outcome determining information comprises a random number.

11. The system of claim 9 wherein the game outcome determining information comprises a next entry in a stored set of predetermined game outcomes.

12. The system of claim 9 wherein the game outcome action comprises a payment to a game player if the game outcome is a winning outcome and is successfully validated.

13. The system of claim 9 wherein the request for validation of the game outcome comprises a request for authentication of the game outcome determining information.

14. The system of claim 13 wherein the host computer resends the game outcome determining information to the gaming terminal in response to the request for authentication.

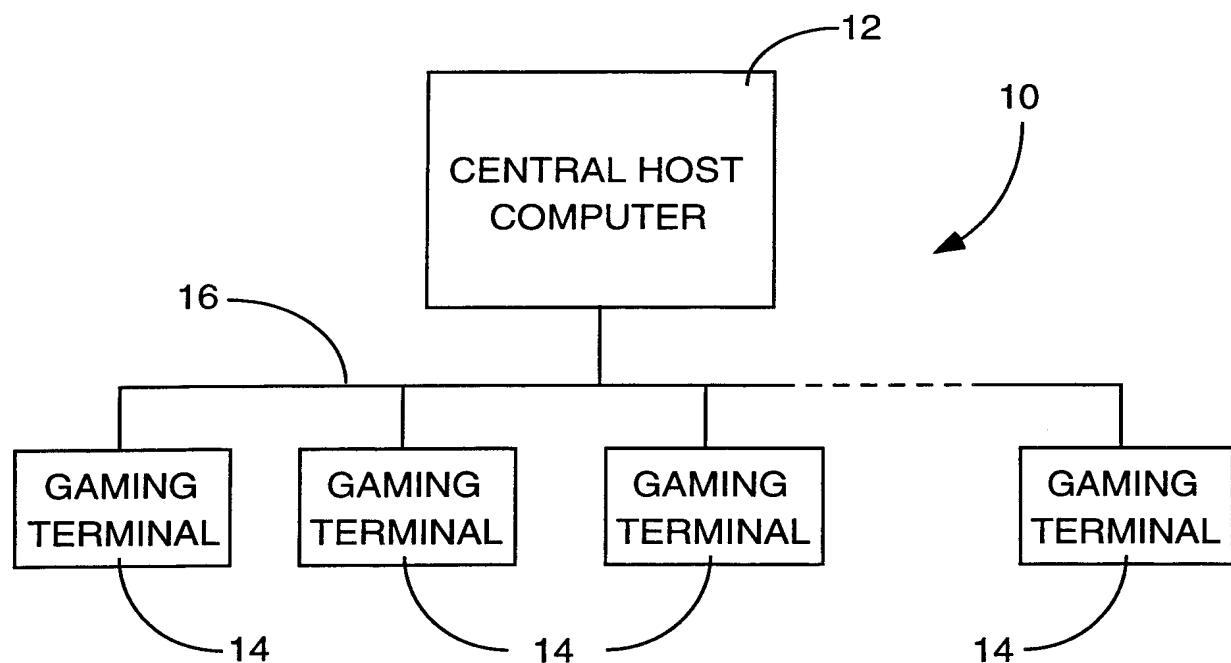


FIG. 1

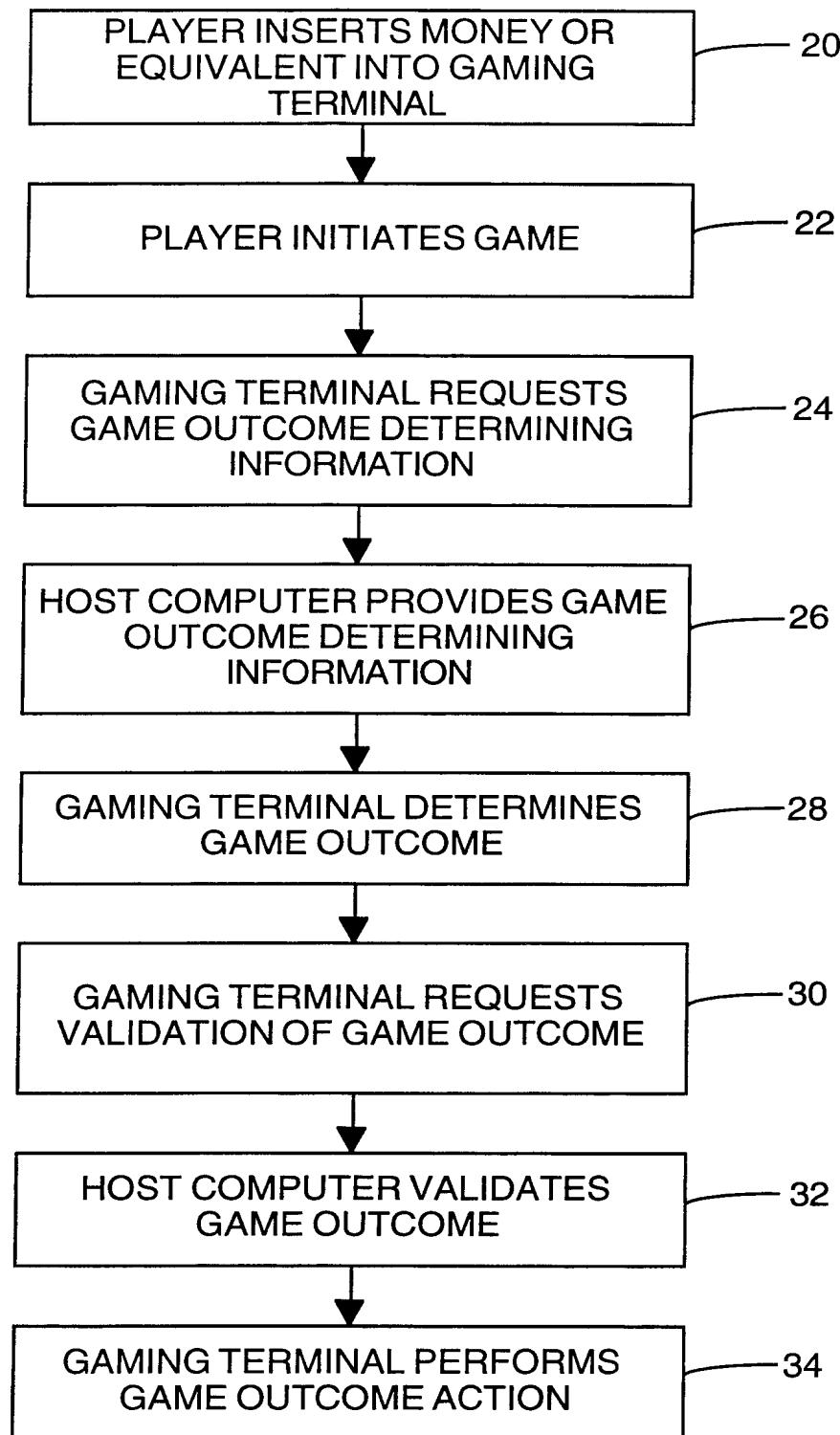


FIG. 2

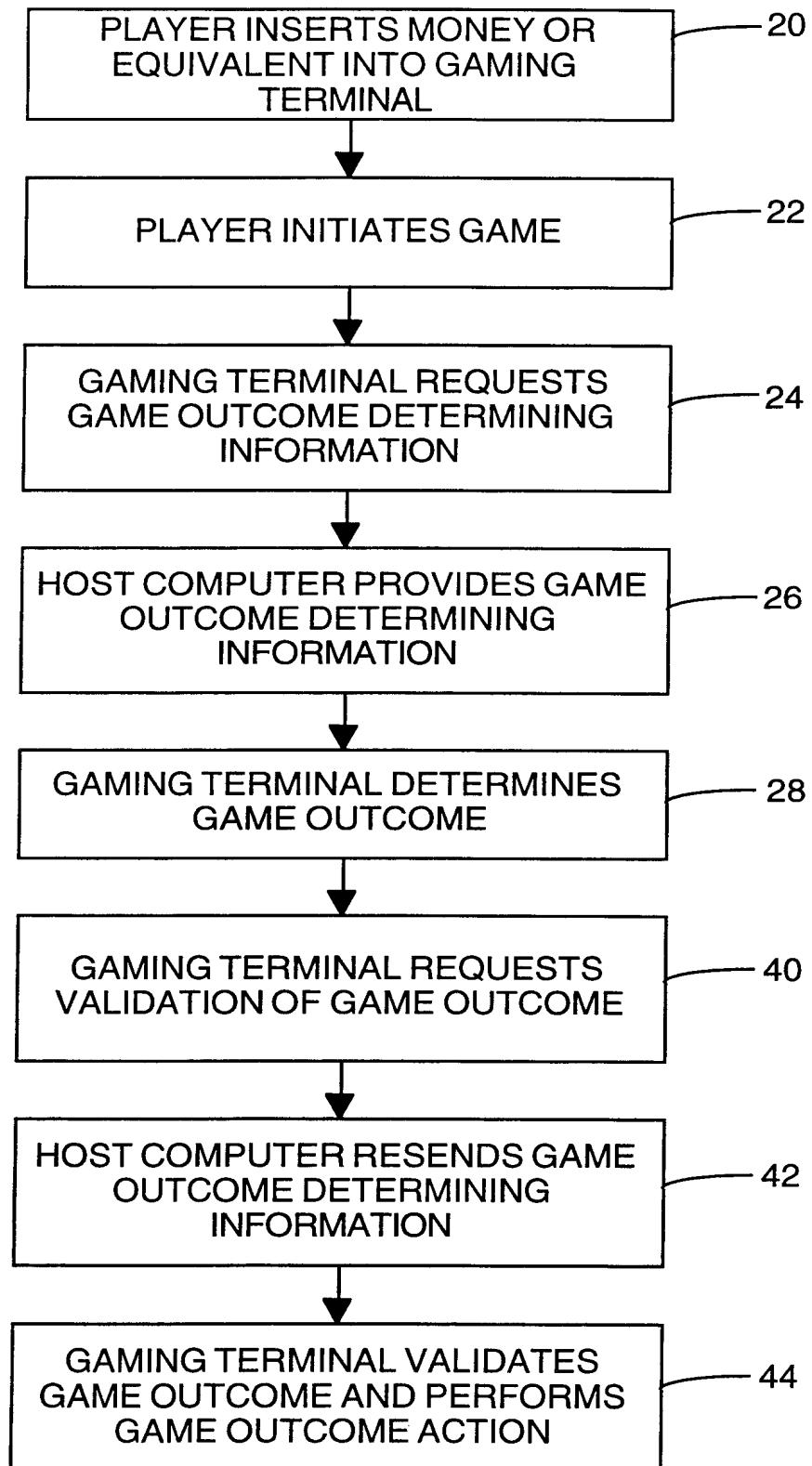


FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/10958

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H04L 9/32

US CL : 463/42

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 463/42, 40, 41, 1, 29, 20, 25, 12, 13, 16; 340/825.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 5,970,143 A (SCHNEIER et al.) 19 October 1999, See entire document.	1-14
A	US 5,779,545 A (BERG et al.) 14 July 1998, See col. 1, lines 27-35; col. 4, lines 50-54.	1-14
A	US 5,586,937 A (MENASHE) 24 December 1996, See col. 4, lines 11-12.	1-14
A	US 5,643,086 A (ALCORN et al.) 01 July 1997, See cols. 3 & 4.	1-14
A, P	US 5,882,258 A (KELLY et al.) 16 March 1999, See col. 6, lines 53-61.	1-14

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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Date of the actual completion of the international search

26 MAY 2000

Date of mailing of the international search report

21 JUN 2000

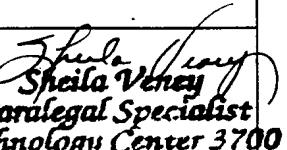
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Authorized officer

JULIE KASICK

Telephone No. (703) 308-1148



 Sheila Veney
 Paralegal Specialist
 Technology Center 3700